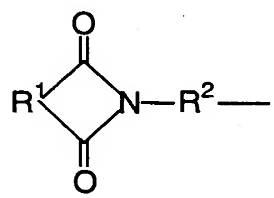
CLAIMS

1. A film which comprises a thermoplastic composition comprising:
(A) 100 parts by weight of at least one thermoplastic resin selected from the group consisting of a thermoplastic polyester and an aromatic polycarbonate, and
(B) 0.1 to 10 parts by weight, in terms of ash content, of layered silicate having, as at least a portion of cations, an organic cation represented by the following formula (I):

$$(R)_n\text{—}L^+ \quad \text{...(I)}$$

wherein R is a group represented by the following formula (I-1):


...(I-1)

wherein R^1 is a divalent hydrocarbon group having 5 to 20 carbon atoms, and R^2 is a divalent hydrocarbon group having 1 to 20 carbon atoms,
an alkyl group, an aryl group or an aralkyl group, L^+ is an ammonium ion, a phosphonium ion or a hetero aromatic ion, and n is an integer of 1 to 5, with the proviso that when L^+ is an ammonium ion or a phosphonium ion, n is 4 and four Rs may be the same or different.

2. The film of claim 1, which is a monoaxially or biaxially oriented film.

3. The film of claim 2, wherein in X-ray diffraction when X-ray is irradiated in a perpendicular direction of a cross section of the film, an orientation factor f which corresponds to a diffraction peak with the highest intensity among diffractions from the layered silicate satisfies the

following formula (II):

$$0.6 \le f \le 1 \quad \ldots \quad (II)$$

wherein

$$f = \frac{3\langle \cos^2\phi \rangle - 1}{2}$$

$$\langle \cos^2\phi \rangle = \frac{\int_0^{\pi/2} I(\phi)\cos^2\phi \sin\phi \, d\phi}{\int_0^{\pi/2} I(\phi)\sin\phi \, d\phi}$$

ϕ represents a direction angle (degree), and $I(\phi)$ represents diffraction intensity at the direction angle ϕ.

4. The film of claim 2 or 3, wherein the shape of the cation-exchanged layered silicate observed from a cross section of the film satisfies the following formula (III):

$$120° \leqq (\angle ACB)ave \leqq 180° \quad \ldots \quad (III)$$

wherein A, B and C are points in one layered silicate, A and B are both end points in a longitudinal direction of the layered silicate, C is the farthest point from a straight line connecting A to B, ∠ACB is an angle (°) formed by the line AC and the line BC, and (∠ACB)ave is the average of ∠ACB which is determined from 10 layered silicates with the first to tenth largest distances between the points A and B that are contained in a cross sectional area of 10 μm^2.

5. The film of claim 2 or 3, wherein the shape of the cation-exchanged layered silicate observed from a cross section of the film satisfies the following formula (IV):

$$0 \leqq \sigma(\angle A{*}B\ D{*}E) \leqq 16 \quad \ldots \quad (IV)$$

wherein A and B are points in one layered silicate and end points in a longitudinal direction of the layered silicate,

A*B is a straight line connecting the point A to the point B, D*E is a reference straight light prepared on the cross section of the film, ∠A*B D*E is an acute angle (°) formed by A*B and D*E, and σ(∠A*B D*E) is the standard deviation of ∠A*B D*E which is determined for 10 layered silicates with the first to tenth largest distances between the points A and B that are contained in an arbitrary cross sectional area of 10 μm^2.

6. The film of claim 1, wherein the thermoplastic polyester is an aromatic polyester.

7. The film of claim 6, wherein the aromatic polyester is a poly(ethylene terephthalate), a poly(trimethylene)terephthalate, a poly(butylene terephthalate) and a poly(ethylene-2,6-naphthalene dicarboxylate).

8. The film of claim 1, wherein the aromatic polycarbonate is a polycarbonate based on bisphenol A.

9. The film of claim 1, wherein the layered silicate has, as at least a portion of cations, the organic cation represented by the formula (I) wherein at least one of Rs is the group represented by the formula (I-1).

10. The film of claim 1, wherein the thickness of the layered silicate in a cross section of the film is 3 to 100 nm.

11. A thermoplastic resin composition comprising:
(A') 100 parts by weight of thermoplastic resin, and
(B) 0.1 to 10 parts by weight in terms of ash content of layered silicate having, as at least a portion of cations, the organic cation represented by the formula (I) wherein at least one

of Rs is the group represented by the formula (I-1).

12. The composition of claim 11, wherein the layered silicate has the organic cation such that a cation exchange percentage (%) represented by the following formula (VI) is 50 to 200.

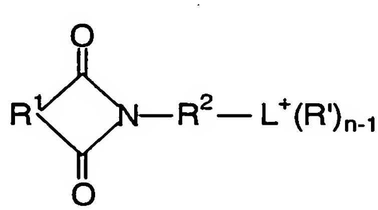
Cation Exchange Percentage (%) = $\{Wf/(1 - Wf)\}/(M_{org}/M_{si}) \times 100$ ... (VI)

(Wf represents a weight reduction ratio of the layered silicate measured by a thermogravimetric analysis from 120° C to 800° C at a temperature increasing rate of 20° C/min, M_{org} represents the molecular weight of the imidazolium ion, and M_{si} represents a molecular weight of the layered silicate per charge. The molecular weight per charge in the layered silicate is a value calculated by a reciprocal of the cation exchange capacity (unit: gram equivalent or eq/100 g) of the layered silicate.)

13. The composition of claim 11, wherein the layered silicate has a thermal decomposition temperature of not lower than 310° C.

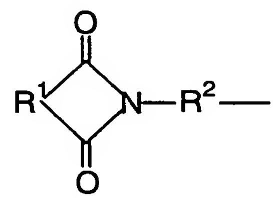
14. The composition of claim 11, wherein the layered silicate is smectite, vermiculite or mica in which at least a portion of cations has been replaced by the organic cation.

15. A layered silicate having, as at least a portion of cations, an organic cation represented by the following formula:



wherein R^1 is a divalent hydrocarbon group having 5 to 20 carbon atoms, R^2 is a divalent hydrocarbon group having 1 to 20 carbon

atoms, R' is a group represented by the following formula (I-1):



...(I-1)

wherein R^1 and R^2 are the same as defined above, an alkyl group, an aryl group or an aralkyl group, L^+ is an ammonium ion, a phosphonium ion or a hetero aromatic ion, and n is 1 to 5.

16. The silicate of claim 15, which has the organic cation such that a cation exchange percentage (%) represented by the following formula is 50 to 200.

$$\text{Cation Exchange Percentage (\%)} = \{Wf/(1 - Wf)\}/(M_{org}/M_{si}) \times 100 \quad \text{... (VI)}$$

(Wf represents a weight reduction ratio of the layered silicate measured by a thermogravimetric analysis from 120° C to 800° C at a temperature increasing rate of 20° C/min, M_{org} represents the molecular weight of the imidazolium ion, and M_{si} represents a molecular weight of the layered silicate per charge. The molecular weight per charge in the layered silicate is a value calculated by a reciprocal of the cation exchange capacity (unit: gram equivalent or eq/100 g) of the layered silicate.)

17. The silicate of claim 15, which has a thermal decomposition temperature of not lower than 310° C.

18. The silicate of claim 15, which is smectite, vermiculite or mica in which at least a portion of cations has been replaced by the organic cation.